

II. CLAIM AMENDMENTS

1. (Currently Amended) A method of growing semiconductor epitaxial layers on a substrate in a chamber, said method comprising ~~the steps of~~:

providing a substrate,

providing a first growth solution, and

(i) exposing the substrate to the first growth solution, the growth solution being under a supersaturated condition such that a first epitaxial layer grows on the surface of the substrate; and

(ii) compositionally grading the first epitaxial layer by varying the pressure in the chamber to change the degree of supersaturation of the first growth solution during epitaxial growth to affect the growth of the first epitaxial layer.

2. (Previously Presented) A method according to claim 1, further comprising:

providing the first growth solution and the substrate at atmospheric pressure,

heating said growth solution to a temperature above its saturation temperature,

setting a temperature in the chamber at or below the saturation temperature,

varying the pressure so as to bring the first growth solution to supersaturation, and

contacting the substrate with said supersaturated first growth solution so as to deposit material from the growth solution as a solid layer onto the substrate.

3. (Currently Amended) A method according to claim ~~42~~13, further comprising:

providing the first growth solution and the at least ~~a~~ second growth solution and the substrate at atmospheric pressure,

heating each of said growth solutions to a temperature above its saturation temperature,

setting a temperature in the chamber at or below the saturation temperature of each growth solution,

varying the pressure in the chamber so as to bring the first growth solution to supersaturation,

contacting the substrate with the supersaturated first growth solution in order to deposit material from the first growth solution as a solid layer onto the substrate,

moving the substrate out of contact with the first growth solution,

varying the pressure in the chamber so as to change the supersaturation of the second growth solution, and

contacting the substrate with the supersaturated second growth solution in order to deposit material from the second growth solution as a solid layer on the first layer.

4. (Currently Amended) A method according to claim 13, further comprising: ~~repeating the steps of~~ moving the substrate out of contact with a growth solution, varying the pressure so as to change the supersaturation of the further ~~subsequent~~ growth solution and contacting the substrate with said supersaturated ~~further~~subsequent growth solution in order to deposit material from said ~~further~~subsequent supersaturated growth solution as a solid layer.

5. (Currently Amended) A method according to claim 1, further comprising: ~~the steps of~~ providing the first growth solution and the substrate at atmospheric pressure, heating said first growth solution to a temperature above its saturation temperature, setting a temperature in the chamber at or below the saturation temperature, varying the pressure in the chamber so as to bring the first growth solution to supersaturation, and bringing the substrate into contact with the growth solution ~~and varying the pressure in the chamber whilst material is deposited onto the substrate from the first growth solution as a solid layer.~~

6. (Currently Amended) A method according to claim 13~~12~~, further comprising:

providing the first growth solution and at least a second growth solution and the substrate at atmospheric pressure,

heating each of said growth solutions to a temperature above its saturation temperature,

setting a temperature in the chamber at or below the saturation temperature of each growth solution,

varying the pressure in the chamber so as to bring the first growth solution to supersaturation,

bringing the substrate into contact with the supersaturated first growth solution and varying the pressure in the chamber whilst material is deposited onto the substrate from the first growth solution as a solid layer,

moving the substrate out of contact with the first growth solution,

varying the pressure in the chamber so as to change the supersaturation of the second growth solution, and

bringing the substrate into contact with the supersaturated second growth solution and varying the pressure whilst material is deposited onto the substrate from the second growth solution as a solid layer.

7. (Currently Amended) A method according to claim 6, further comprising:

repeating ~~the steps of~~ moving the substrate out of contact with a growth solution, varying the pressure to change the supersaturation of a further ~~subsequent~~ growth solution, contacting the substrate with the supersaturated further ~~subsequent~~ growth solution and varying the pressure in the chamber whilst material is deposited onto the substrate from the further ~~subsequent~~ growth solution as a solid layer.

8. (Previously Presented) A method according to claim 1, further comprising setting a temperature in the chamber of at least 500°C.

9. (Previously Presented) A method according to claim 1, further comprising setting the temperature in the chamber at or below the saturation temperature of the first growth solution and maintaining the temperature essentially constant throughout the method.

10. (Previously Presented) A method according to claim 1, wherein said semiconductor epitaxial layers comprise a system which includes III-V semiconductor epitaxial layers.

11. (Original) A method according to claim 1 in which the semiconductor epitaxial layers comprise GaSb.

12. (Currently Amended) A method according to claim 1, further comprising ~~the steps of~~:

providing one or more further growth solutions, and

(i) exposing the substrate to each of the one or more further growth solutions, the further growth solutions being under a supersaturated condition such that one or more further layers grow on the surface of the first layer; and

(ii) varying a pressure in the chamber to change the degree of supersaturation of each of the one or more further growth solutions to affect the growth of one or more the further layers.

13. (New) A method of growing semiconductor epitaxial layers on a substrate in a chamber, said method comprising:

providing a substrate,

providing a first growth solution, and

(i) exposing the substrate to the first growth solution, the growth solution being under a supersaturated condition such that a first epitaxial layer grows on the surface of the substrate; and

(ii) exposing the substrate to at least one further growth solution, the at least one further growth solution being under a supersaturated condition such that at least one further epitaxial layer grows on the surface of the first epitaxial layer;

wherein the method comprises varying the pressure in the chamber between growth of the first epitaxial layer and

exposing the substrate to the at least one further growth solution so as to change the degree of supersaturation of the at least one further growth solution to affect the growth of the at least one further epitaxial layer.